

## Exhibit D

### Invalidity Chart for the '726 Patent (Baumann and the '056 Patent)

INVALIDITY CLAIM CHART D  
U.S. PATENT NO. 5,686,726 (Baumann and '056 Patent)

The '726 patent is invalid as anticipated under 35 U.S.C. § 102(b) by and/or obvious under 35 U.S.C. § 103(a) over the Baumann reference, either alone or in view of the '056 patent. To the extent it is found that any reference does not anticipate the asserted claims, each reference renders them obvious under 35 U.S.C. § 103(a), either alone or in combination with the other prior art identified in the cover pleading or herein. Moreover, to the extent it is found that any reference does not expressly disclose certain limitations in the asserted claims, such limitations may be inherent.

5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
Claim 1			
A composition of matter comprising			
a population of multiply charged polyatomic ions derived from a distinct polyatomic parent molecular species,	Baumann discloses populations of multiply charged ions that are generated from distinct polyatomic molecules as well as from noble gases. See Baumann, Figures 1-2, 8-13, Tables 1-2.		<p>Each element of claim 1 of the '726 patent is found in or rendered obvious by Baumann.</p> <p>Claim 1 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 1 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i>, 541 F.2d at 267; <i>In re Peterson</i>, 65 U.S.P.Q.2d at 1382.</p>
all molecules of said distinct polyatomic parent molecular species having substantially the same molecular weight and chemical identity,	Baumann analyzes single molecular species so all molecules of the parent molecular species have substantially the same molecular weight and are chemically identical.		
the number of charges on each ion in said population of multiply charged polyatomic ions defining that ion's charge state number, said population of multiply charged polyatomic ions comprising a plurality of sub-populations of ions, all the ions of each of said sub-populations having the same charge state number, said same charge state number differing from the charge state numbers of the ions in the other sub-populations of said plurality of subpopulations,	Baumann discloses populations of multiply charged ions where the number of charges defines the ion's charge state number. Tables 1 and 2 and Figures 8-13 show that ions in the same sub-populations have the same charge state number, where the charge state numbers differ from the charge state numbers of the neighboring sub-populations.		
said plurality of sub-populations comprising one sub-population for each	The maximum values of the charge state number for the		

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5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
value of charge state number beginning with a smallest value not less than three and extending to a largest value not less than five.	subpopulations of multiply charged ions range up to thirty charges. See Section 3.3, Figures 8-13.		
Claim 3, depends from claim 1			
The composition of matter of claim 1 in which said smallest value of charge state number is not less than seven and said largest value is not less than ten.	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		Claim 3 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 3 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 5, depends from claim 1			
The composition of matter of claim 1 in which said polyatomic parent molecular species is selected from a class of compounds known as biopolymers.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)" and that "[i]t is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the disclosure of the '056 patent to teach the application of electrospray ionization methods to "biopolymers" to produce the compositions of claim 5 of the '726 patent.
Claim 6, depends from claim 1			
The composition of matter of claim 1 in which said distinct polyatomic parent molecular species is not a synthetic	None of the parent molecular species analyzed by Baumann is a synthetic polymer such as PEG.		One of ordinary skill in the art would understand the disclosure of Baumann to

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5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
polymers [sic] such as a poly (ethylene glycol), having less than four different constituent elemental species.			anticipate or render obvious claim 6 of the '726 patent including excluding compounds like polyethylene glycols.
Claim 8, depends from claim 1			
The composition of matter as claimed in claim 1  in which said distinct polyatomic parent molecular species has a molecular weight not less than 5000.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the '056 patent to disclose the application of electrospray methods to a "distinct polyatomic parent molecular species [that] has a molecular weight not less than about 5000" to produce the composition of claim 8 of the '726 patent.
Claim 9			
A composition of matter comprising one or more populations of multiply charged polyatomic ions derived from a sample comprising at least one polyatomic parent molecular species,	Baumann discloses populations of multiply charged ions that are generated from distinct polyatomic molecules as well as from noble gases. See Baumann, Figures 1-2, 8-13, Tables 1-2.		Each element of claim 9 of the '726 patent is found in or rendered obvious by Baumann in view of the '056 patent.  Claim 9 of the '726 patent differs from Baumann in the

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the number of charges on each ion defining said ion's charge state number, said population of multiply charged polyatomic ions formed from said at least one polyatomic parent molecular species comprising a plurality of sub-populations, the ions of each sub-population having the same charge state number, said charge state number differing by one from the next largest and the next smallest values of charge state number found in the other sub-populations of said plurality,	Baumann discloses populations of multiply charged ions where the number of charges defines the ion's charge state number. Tables 1 and 2 and Figures 8-13 show that the sub-populations have the same charge state number, where the charge state numbers differ by one from the charge state numbers of the neighboring sub-populations.		range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 9 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
the ions of each of said sub-populations having a value of said charge state number that is not less than five, said composition of matter being formed by:	Baumann discloses that the ions generated may have up to thirty charges. <i>See</i> Section 3.3, Figures 8-13.		Furthermore, the added process steps were known in the electrospray mass spectrometry art as exemplified by the disclosure of the '056 patent, which describes electrospray ionization.
dispersing a solution of said sample containing said at least one polyatomic parent molecular species into a bath gas as charged droplets, said dispersing taking place in the presence of an electric field; and allowing the solvent of said solution to evaporate from said charged droplets until at least some molecules of said polyatomic parent molecular species become dispersed in said bath gas as said multiply charged polyatomic ions.		The '056 patent teaches the electrospray ionization technique, describing how the sample to be ionized is dissolved in a solvent, which is displaced through the capillary of the apparatus into a "region of high pressure and electrical field" wherein the liquid emerging becomes "charged" and the solvent begins to evaporate into charged droplets, which are directed into the mass spectrometer analyzer. <i>See</i> '056 patent at 2:53- 3:62.	
Claim 10, depends from claim 9			
The composition of matter of claim 9 in which the charge state number of the ions in each of said sub-populations of	Baumann discloses that the ions generated may have up to thirty charges. <i>See</i> Section 3.3,		Claim 10 of the '726 patent differs from Baumann in the range of charge states recited.

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said plurality of sub-populations is at least seven.	Figures 8-13.		Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 10 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 11, depends from claim 9			
The composition of matter of claim 9 in which all molecules of said at least one of said polyatomic parent molecular species have substantially the same molecular weight.	Baumann analyzes single molecular species so all molecules of the parent molecular species have substantially the same molecular weight.		One of ordinary skill in the art would understand the disclosure of Baumann to anticipate or render obvious claim 11 of the '726 patent including forming the compositions from compounds having substantially the same molecular weight.
Claim 16			
A composition of matter comprising one or more distinct populations of multiply charged polyatomic ions generated from a sample comprising one or more distinct polyatomic parent molecular species,	Baumann discloses populations of multiply charged ions that are generated from distinct polyatomic molecules as well as from noble gases. <i>See</i> Baumann, Figures 1-2, 8-13, Tables 1-2.		Each element of claim 16 of the '726 patent is found in or rendered obvious by Baumann.  Claim 16 of the '726 patent differs from Baumann in the range of charge states recited.

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5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
the number of charges on each ion defining the ion's charge state number, each of said populations of polyatomic ions comprising a plurality of sub-populations, each of said plurality of sub-populations being comprised of ions formed from one of said distinct polyatomic parent molecular species and having the same charge state number,	Baumann discloses populations of multiply charged ions where the number of charges defines the ion's charge state number. Tables 1 and 2 and Figures 8-13 show that the sub-populations have the same charge state number.		Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 16 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
there being at least one of said populations of multiply charged polyatomic ions that comprises one of said sub-populations for each value of charge state number beginning with a smallest value of three and extending to a largest value not less than five.	Baumann discloses that the ions generated may have up to thirty charges. <i>See</i> Section 3.3, Figures 8-13.		
Claim 18, depends from claim 16			
The composition of matter of claim 16 in which said smallest value of charge state number is not less than seven and said largest value of charge state number is not less than ten.	Baumann discloses that the ions generated may have up to thirty charges. <i>See</i> Section 3.3, Figures 8-13.		Claim 18 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 18 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 19, depends from claim 16			
The composition of matter of claim 16 in which all molecules of each of said distinct polyatomic parent molecular species have substantially the same	Baumann analyzes single molecular species so all molecules of the parent molecular species have substantially the		One of ordinary skill in the art would understand the disclosure of Baumann to anticipate or render obvious

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molecular weight.	same molecular weight.		claim 19 of the '726 patent including forming the compositions from compounds having substantially the same molecular weight.
Claim 20, depends from claim 16			
The composition of matter in claim 16 in which at least one of said distinct polyatomic parent molecular species is selected from a class of compounds known as biopolymers.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)" and that "[i]t is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the disclosure of the '056 patent to teach the application of electrospray ionization methods to "biopolymers" to produce the compositions of claim 20 of the '726 patent.
Claim 21, depends from claim 16			
The composition of matter in claim 16 in which at least one of said distinct polyatomic parent molecular species is selected from the group comprising proteins, peptides, polypeptides, carbohydrates, oligonucleotides and glycoproteins.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)" and that "[i]t is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the disclosure of the '056 patent to teach the application of electrospray ionization methods to make the compositions from "proteins, peptides, polypeptides, carbohydrates, oligonucleotides and glycoproteins" according to claim 21 of the '726 patent.
Claim 22, depends from claim 16			
The composition of matter of claim 16 in which at least one of said distinct polyatomic parent molecular species is not a synthetic polymer, such as a poly (ethylene glycol), having less than four	None of the parent molecular species analyzed by Baumann is a synthetic polymer such as PEG.		One of ordinary skill in the art would understand the disclosure of Baumann to anticipate or render obvious claim 22 of the '726 patent including excluding compounds



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different constituent elemental species.			like polyethylene glycols.
Claim 23, depends from claim 16			
The composition of matter of claim 16  in which at least one of said distinct polyatomic parent molecular species has a molecular weight not less than about 5000.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand disclosure of the '056 patent to disclose the application of electrospray methods to a "distinct polyatomic parent molecular species [that] has a molecular weight not less than about 5000" to produce the compositions of claim 23 of the '726 patent.
Claim 24			
A composition of matter comprising  one or more distinct populations of multiply charged polyatomic ions generated from a sample comprising one or more distinct polyatomic parent molecular species,	Baumann discloses populations of multiply charged ions that are generated from a sample comprising distinct polyatomic molecules as well as from noble gases. See Baumann, Figures 1-2, 8-13, Tables 1-2.		Each element of claim 24 of the '726 patent is found in or rendered obvious by Baumann.
the number of charges on each ion defining its charge state number, each of said populations of multiply charged polyatomic ions comprising ions formed from one of said distinct polyatomic molecular species and being comprised of a plurality of sub-populations, the ions of each of said sub-populations having the same charge state number,	Baumann discloses populations of multiply charged ions where the number of charges defines the ion's charge state number. Tables 1 and 2 and Figures 8-13 show the populations of multiply charged ions comprise ions from distinct polyatomic molecular species and that the sub-populations have the same charge state number.		Claim 24 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 24 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
there being one of said sub-populations for each value of said charge state number beginning with a smallest value not less than three and extending to a	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		

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largest value not less than five.			
Claim 26, depends from claim 24			
The composition of matter of claim 24 in which at least one of said distinct polyatomic parent molecular species is selected from a class of compounds known as biopolymers.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)" and that "[i]t is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the disclosure of the '056 patent to teach the application of electrospray ionization methods to "biopolymers" to produce the compositions of claim 26 of the '726 patent.
Claim 27, depends from claim 24			
The composition of matter of claim 24 in which at least one of said distinct polyatomic parent molecular species is selected from the group comprising proteins, peptides polypeptides, carbohydrates, oligonucleotides and glycoproteins.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the disclosure of the '056 patent to teach the application of electrospray ionization methods to make the compositions from "proteins, peptides polypeptides, carbohydrates, oligonucleotides and glycoproteins" according to claim 27 of the '726 patent.
Claim 28, depends from claim 24			
The composition of matter of claim 24 in which at least one of said distinct polyatomic parent molecular species is not selected from the group comprising synthetic polymers having less than four different constituent elemental species, said group comprising poly (ethylene glycol)s.	None of the parent molecular species analyzed by Baumann is a synthetic polymer such as PEG.		One of ordinary skill in the art would understand the disclosure of Baumann to anticipate or render obvious claim 28 of the '726 patent including excluding compounds like polyethylene glycols.
Claim 29, depends from claim 24			

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The composition of matter of claim 24 in which at least one of said distinct polyatomic parent molecular species has a molecular weight not less than 5000.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the '056 patent to disclose the application of electrospray methods to a "distinct polyatomic parent molecular species [that] has a molecular weight not less than about 5000" to produce the composition of claim 29 of the '726 patent.
Claim 31			
A composition of matter comprising one or more distinct populations of multiply charged polyatomic ions generated from a sample comprising one or more distinct polyatomic parent molecular species,	Baumann discloses populations of multiply charged ions that are generated from distinct polyatomic molecules as well as from noble gases. See Baumann, Figures 1-2, 8-13, Tables 1-2.		Each element of claim 31 of the '726 patent is found in or rendered obvious by Baumann in view of the '056 patent.
the number of charges on each ion defining the ion's charge state number, each of said populations of multiply charged polyatomic ions comprising ions formed from one of said distinct polyatomic parent molecular species in said sampler [sic] at least one of said populations of multiply charged polyatomic ions being comprised of a plurality of sub-populations,	Baumann discloses populations of multiply charged ions where the number of charges defines the ion's charge state number and where the populations of multiply charged ions are comprised of a plurality of sub-populations.		Claim 31 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 31 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
the ions of each of said sub-populations having the same value of charge state number, that value being different from the values of charge state number in all the other sub-populations of ions in said plurality of sub-populations, the smallest value of charge state number of the ions in said plurality of sub-populations being	Tables 1 and 2 and Figures 8-13 show that ions in the same sub-populations have the same charge state number, where the charge state numbers differ from the charge state numbers of the neighboring sub-populations. Baumann discloses that the ions		Furthermore, the added process steps were known in the electrospray mass spectrometry art as exemplified by the disclosure of the '056 patent,

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not less than three,	generated may have up to thirty charges. See Section 3.3, Figures 8-13.		which describes electrospray ionization.
said composition of matter being formed by: dispersing a solution containing said one or more distinct polyatomic parent molecular species into a bath gas as charged droplets, said dispersing taking place in the presence of an electric field, allowing the solvent of said solution to evaporate from said charged droplets until at least some molecules of said distinct polyatomic parent molecular species become dispersed in said bath gas as said multiply charged ions.		The '056 patent teaches the electrospray ionization technique, describing how the sample to be ionized is dissolved in a solvent, which is displaced through the capillary of the apparatus into a "region of high pressure and electrical field" wherein the liquid emerging becomes "charged" and the solvent begins to evaporate into charged droplets, which are directed into the mass spectrometer analyzer. See '056 patent at 2:53- 3:62.	
Claim 33, depends from claim 31			
The composition of matter of claim 31 in which said smallest value of charge state number is not less than seven.	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		Claim 33 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 33 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 35, depends from claim 31			
The composition of matter of claim 31 in which all molecules of at least one of	Baumann analyzes single molecular species so all		One of ordinary skill in the art would understand the

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said distinct polyatomic parent molecular species have the same chemical formula.	molecules of the parent molecular species have the same chemical formula.		disclosure of Baumann to anticipate or render obvious claim 35 of the '726 patent including forming the compositions from compounds having the same chemical formula.
Claim 43			
A composition of matter comprising one or more populations of multiply charged polyatomic ions generated from a sample comprising one or more distinct polyatomic parent molecular species,	Baumann discloses populations of multiply charged ions that are generated from distinct polyatomic molecules as well as from noble gases. See Baumann, Figures 1-2, 8-13, Tables 1-2.		Each element of claim 43 of the '726 patent is found in or rendered obvious by Baumann.
the number of charges on each ion defining the ion's charge state number, each of said populations of multiply charged polyatomic ions comprising ions formed from one of said one or more distinct polyatomic parent molecular species, at least one of said populations of ions comprising a plurality of sub-populations of ions, all the ions in each sub-population having the same charge state number,	Baumann discloses populations of multiply charged ions where the number of charges defines the ion's charge state number. Tables 1 and 2 and Figures 8-13 show that the sub-populations have the same charge state number.		Claim 43 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 43 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
said at least one of said populations comprising one such sub-population for each possible value of charge state number beginning with a smallest value not less than three and extending to a largest value not less than five,	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		Including the "calculation" and "determination" of the molecular weight from the values of mass/charge (m/z) step recited in claim 43 of the '726 patent is not only obvious, but also does

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said composition of matter being useful in the determination of a value of molecular weight for one or more of said distinct polyatomic parent molecular species, said determination of molecular weight being achieved by means of a mass analysis of ions from said one or more populations of ions and a calculation of the molecular weight values of said one or more polyatomic parent molecular species from the values of mass/charge (m/z) obtained by said mass analysis for the ions in said one or more populations of polyatomic ions.	One skilled in the art at the time of the invention would have understood the relationship between mass/molecular weight and m/z ratio and could have performed the calculations with the m/z values. See, e.g., Baumann Figures 8-13.		not render the otherwise invalid claim patentable. See, e.g., <i>Parker v. Flook</i> , 47 U.S. 548, 98 S.Ct. 2522 (1978).
Claim 45, depends from claim 43			
The composition of matter of claim 43 in which said smallest value of charge state number is not less than seven and said largest value of charge state number is not less than ten.	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		Claim 45 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 45 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 46, depends from claim 43			
The composition of matter of claim 43 in which all molecules of any particular one of said distinct polyatomic parent molecular species have substantially the same molecular weight.	Baumann analyzes single molecular species so all molecules of the parent molecular species have substantially the same molecular weight.		One of ordinary skill in the art would understand the disclosure of Baumann to anticipate or render obvious claim 46 of the '726 patent including forming the

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			compositions from compounds having substantially the same molecular weight.
Claim 47, depends from claim 43			
The composition of matter of claim 43 in which at least one of said distinct polyatomic parent molecular species is selected from a class of compounds known as biopolymers.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)" and that "[i]t is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the disclosure of the '056 patent to teach the application of electrospray ionization methods to "biopolymers" to produce the compositions of claim 47 of the '726 patent.
Claim 48, depends from 43			
The composition of matter of claim 43 in which at least one of said distinct polyatomic parent molecular species is selected from the group comprising proteins, peptides, polypeptides, carbohydrates, oligonucleotides and glycoproteins.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)" and that "[i]t is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the disclosure of the '056 patent to teach the application of electrospray ionization methods to make the compositions from "proteins, peptides, polypeptides, carbohydrates, oligonucleotides and glycoproteins" according to claim 48 of the '726 patent.
Claim 49, depends from 43			
The composition of matter of claim 43 in which at lease [sic] one of said distinct polyatomic parent molecular species is not selected from the group of synthetic polymers having less than four different distinct elemental constituent species, said group comprising poly (ethylene glycol)s.	None of the parent molecular species analyzed by Baumann is a synthetic polymer such as PEG.		One of ordinary skill in the art would understand the disclosure of Baumann to anticipate or render obvious claim 49 of the '726 patent including excluding compounds like polyethylene glycols.

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Claim 50, depends from 43			
The composition of matter of claim 43 in which at least one of said distinct polyatomic parent molecular species has a molecular weight not less than 5000.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the '056 patent to disclose the application of electrospray methods to a "distinct polyatomic parent molecular species [that] has a molecular weight not less than about 5000" to produce the composition of claim 50 of the '726 patent.
Claim 51			
The composition of matter comprising one or more populations of multiply charged polyatomic ions generated from a sample comprising one or more distinct polyatomic parent molecular species,	Baumann discloses populations of multiply charged ions that are generated from distinct polyatomic molecules as well as from noble gases. See Figures 1-2, 8-13, Tables 1-2.		Each element of claim 51 of the '726 patent is found in or rendered obvious by Baumann.
the number of charges on each ion defining the ion's charge state number, each of said populations comprising ions formed from one of said one or more distinct polyatomic parent molecular species, at least one of said populations of multiply charged polyatomic ions comprising a plurality of sub-populations of ions, all the ions in each sub-population having the same charge state number,	Baumann discloses populations of multiply charged ions where the number of charges defines the ion's charge state number and where the populations of multiply charged ions are comprised of a plurality of sub-populations. Tables 1 and 2 and Figures 8-13 show that ions in the same sub-populations have the same charge state number, where the charge state numbers differ from the charge state numbers of the neighboring sub-populations.		Claim 51 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 51 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
said same charge state number differing from the charge state numbers of the	Tables 1 and 2 and Figures 8-13 show that ions in the same sub-		Including the "calculation" and "determining" of the molecular weight from the values of mass/charge (m/z) step recited



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U.S. PATENT NO. 5,686,726 (Baumann and '056 Patent)

5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
ion in the other sub-populations of said population, said charge state number having a value of at least five for all the ions in said at least one of said populations of multiply charged polyatomic ions,	populations have the same charge state number, where the charge state numbers differ from the charge state numbers of the neighboring sub-populations. Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		in claim 51 of the '726 patent is not only obvious, but also does not render the otherwise invalid claim patentable. See, e.g., <i>Parker v. Flook</i> , 47 U.S. 548, 98 S.Ct. 2522 (1978).
said composition of matter being useful for determining the molecular weight of one or more of said distinct polyatomic parent molecular species, said determination of the molecular weight being achieved by a mass analysis of the ions in said one or more populations of multiply charged polyatomic ions together with a calculation of the said molecular weight of said one or more polyatomic parent molecular species from the values of mass/charge (m/z) obtained by mass analysis of ions in said one or more populations of multiply charged polyatomic ions.	One skilled in the art at the time of the invention would have understood the relationship between mass/molecular weight and m/z ratio and could have performed the calculations with the m/z values. See, e.g., Figures 8-13.		
Claim 52, depends from claim 51			
The composition of matter of claim 51 in which every ion in said at least one of said populations of multiply charged polyatomic ions has a charge state number not less than seven.	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		Claim 52 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 52 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> ,

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5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
			65 U.S.P.Q.2d at 1382.
Claim 57			
A composition of matter comprising			
one or more distinct populations of multiply charged polyatomic ions generated from a sample comprising one or more distinct polyatomic parent molecular species,	Baumann discloses populations of multiply charged ions that are generated from distinct polyatomic molecules as well as from noble gases. See Baumann, Figures 1-2, 8-13, Tables 1-2.		Each element of claim 57 of the '726 patent is found in or rendered obvious by Baumann in view of the '056 patent.
the number of charges on each ion defining the ion's charge state number, each of said multiply charged polyatomic ions in any one of said one or more distinct populations having been formed from one of said distinct polyatomic parent molecular species in said sample, at least one of said distinct populations of multiply charged polyatomic ions comprising a plurality of sub-populations of ions, all the ions in each sub-population of said plurality of sub-populations having the same charge state number,	Baumann discloses populations of multiply charged ions where the number of charges defines the ion's charge state number. Tables 1 and 2 and Figures 8-13 show that ions in the same sub-populations have the same charge state number, where the charge state numbers differ from the charge state numbers of the neighboring sub-populations.		Claim 57 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 57 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
said same charge state number differing from the charge state numbers of the ions in the other sub-populations of said plurality of sub-populations, said plurality of sub-populations comprising one such sub-population for each possible value of charge state number beginning with a smallest value not less than three and extending to a largest value not less than five,	Tables 1 and 2 and Figures 8-13 show that ions in the same sub-populations have the same charge state number, where the charge state numbers differ from the charge state numbers of the neighboring sub-populations. Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		Furthermore, the added process steps were known in the electrospray mass spectrometry art as exemplified by the disclosure of the '056 patent, which describes electrospray ionization.  Including "the property that the molecular weight of each of said distinct polyatomic parent molecular species in said sample can be calculated

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5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
<p>said composition of matter being formed by:</p> <p>dispersing a solution containing said polyatomic parent molecular species into a bath gas as charged droplets, said dispersing taking place in the presence of an electric field; allowing the solvent of said solution to evaporate from said charged droplets until at least some molecules of said distinct polyatomic parent molecular species become dispersed in said bath gas as said multiply charged polyatomic ions;</p>		<p>The '056 patent teaches the electrospray ionization technique, describing how the sample to be ionized is dissolved in a solvent, which is displaced through the capillary of the apparatus into a "region of high pressure and electrical field" wherein the liquid emerging becomes "charged" and the solvent begins to evaporate into charged droplets, which are directed into the mass spectrometer analyzer. See '056 patent at 2:53- 3:62.</p>	<p>mass/charge (m/z) values," recited in claim 57 of the '726 patent is not only obvious, but also does not render the otherwise invalid claim patentable. See, e.g., <i>Parker v. Flook</i>, 47 U.S. 548, 98 S.Ct. 2522 (1978).</p>
<p>said composition of matter having the property that the molecular weight of each of said distinct polyatomic parent molecular species in said sample can be calculated from the mass/charge (m/z) values of the multiply charged polyatomic ions produced from that species.</p>	<p>One skilled in the art at the time of the invention would have understood the relationship between mass/molecular weight and m/z ratio and could have performed the calculations with the m/z values. See, e.g., Baumann Figures 8-13.</p>		
Claim 59, depends from claim 51			
<p>The composition of matter of claim 51 in which said smallest value of charge state number is not less than seven and said largest value is not less than ten.</p>	<p>Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.</p>		<p>Claim 59 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 59 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i>, 541 F.2d at 267; <i>In re Peterson</i>,</p>

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5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
			65 U.S.P.Q.2d at 1382.
Claim 60, depends from claim 51			
The composition of matter of claim 51 in which all molecules of any particular one of said distinct polyatomic parent molecular species have substantially the same molecular weight.	Baumann analyzes single molecular species so all molecules of the parent molecular species have substantially the same molecular weight.		One of ordinary skill in the art would understand the disclosure of Baumann to anticipate or render obvious claim 60 of the '726 patent including forming the claimed composition from compounds having substantially the same molecular weight.
Claim 61, depends from claim 51			
The composition of matter of claim 51 in which at least one of said distinct polyatomic parent molecular species is selected from the class of compounds known as biopolymers.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)" and that "[i]t is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the disclosure of the '056 patent to teach the application of electrospray ionization methods to "biopolymers" to produce the compositions of claim 61 of the '726 patent.
Claim 62, depends from claim 51			
The composition of matter of claim 51 in which at least one of said distinct polyatomic parent molecular species is selected from the group comprising proteins, peptides, polypeptides, carbohydrates, oligonucleotides and glycoproteins.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)" and that "[i]t is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the disclosure of the '056 patent to teach the application of electrospray ionization methods to make the compositions from "proteins, peptides, polypeptides, carbohydrates, oligonucleotides and glycoproteins" according to claim 62 of the '726 patent.

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5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
Claim 63, depends from claim 51			
The composition of matter of claim 51 in which at least one of said distinct polyatomic parent molecular species is not selected from the group of synthetic polymers comprising less than four different constituent elemental species, said group comprising poly (ethylene glycol)s.	None of the parent molecular species analyzed by Baumann is a synthetic polymer such as PEG.		One of ordinary skill in the art would understand the disclosure of Baumann to anticipate or render obvious claim 63 of the '726 patent including excluding compounds like polyethylene glycols.
Claim 68			
A composition of matter that by mass analysis of its component ions is found to comprise one or more distinct populations of multiply charged polyatomic ions,	Baumann discloses the use of a PIG ion source to generate populations of multiply charged ions that are generated from distinct polyatomic molecules as well as from noble gases. See Baumann, Figures 1-2, 8-13, Tables 1-2.		Each element of claim 68 of the '726 patent is found in or rendered obvious by Baumann in view of the '056 patent.
the number of charges on each ion defining the ion's charge state number, each of said distinct populations of multiply charged polyatomic ions comprising ions having been formed from a polyatomic parent molecular species, at least one of said distinct populations of multiply charged polyatomic ions comprising a plurality of sub-populations of ions, all the ions in each sub-population having the same charge state number, said charge state number differing from the charge state number of the other sub-populations in said plurality of sub-populations,	Baumann discloses populations of multiply charged ions where the number of charges defines the ion's charge state number. Tables 1 and 2 and Figures 8-13 show that ions in the same sub-populations have the same charge state number, where the charge state numbers differ from the charge state numbers of the neighboring sub-populations.		Claim 68 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 68 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
said plurality of sub-populations comprising one such sub-population for each possible value of charge state number beginning with a smallest value	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		Furthermore, the added process steps were known in the electrospray mass spectrometry art as exemplified by the disclosure of the '056 patent, which describes electrospray ionization.

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U.S. PATENT NO. 5,686,726 (Baumann and '056 Patent)

5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
not less than three and extending to a largest value not less than five,			
said composition of matter being formed by: dispersing a solution containing one or more polyatomic molecular species into a bath gas as charged droplets, said dispersing taking place in the presence of an electric field; allowing the solvent of said solution to evaporate from said charged droplets until at least some molecules of said polyatomic parent molecular species become dispersed in said bath gas as said multiply charged polyatomic ions; said mass analysis being carried out on a portion of said multiply charged polyatomic ions in said bath gas that is introduced into a vacuum system containing a mass analyzer.		The '056 patent further describes the electrospray ionization technique, describing how the sample to be ionized is dissolved in a solvent, which is displaced through the capillary of the apparatus into a "region of high pressure and electrical field" wherein the liquid emerging becomes "charged" and the solvent begins to evaporate into charged droplets, which are directed into the mass spectrometer analyzer. The '056 patent indicates the ESI technique uses a vacuum system. See '056 patent at 2:53- 3:62.	
Claim 70, depends from claim 68			
The composition of matter of claim 68 in which said smallest value of charge state number is not less than seven and said largest value is not less than ten.	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		Claim 70 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 70 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 72, depends from claim 68			

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U.S. PATENT NO. 5,686,726 (Baumann and '056 Patent)

5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
The composition of matter of claim 68 in which at least one of said distinct polyatomic parent molecular species in said solution is selected from a class of compounds known as biopolymers.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)" and that "[i]t is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the disclosure of the '056 patent to teach the application electrospray ionization methods to "biopolymers" to produce the compositions of claim 72 of the '726 patent.
Claim 73, depends from claim 68			
The composition of matter of claim 68 in which at least one of said distinct polyatomic parent molecular species in said solution has a molecular weight not less than 5000.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the '056 patent to disclose the application of electrospray methods to a "distinct polyatomic parent molecular species [that] has a molecular weight not less than about 5000" to produce the composition of claim 73 of the '726 patent.
Claim 74			
A composition of matter derived from a sample comprising			
one or more distinct polyatomic parent molecular species,	Baumann discloses populations of multiply charged ions that are generated from distinct polyatomic molecules as well as from noble gases. See Baumann, Figures 1-2, 8-13, Tables 1-2.		Each element of claim 74 of the '726 patent is found in or rendered obvious by Baumann.
all molecules of each of said distinct polyatomic parent molecular species having substantially the same molecular weight and chemical identity,	Baumann analyzes single molecular species so all molecules of the parent molecular species have substantially the		Claim 74 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the

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U.S. PATENT NO. 5,686,726 (Baumann and '056 Patent)

5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
	same molecular weight and are chemically identical.		range of charges in claim 74 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
said composition of matter comprising one or more distinct populations of polyatomic ions, at least one of said distinct populations of ions comprising multiply charged ions formed from one of said one or more distinct polyatomic parent molecular species in said sample, the number of charges on each ion defining the charge state number of that ion,	Baumann discloses populations of multiply charged ions where the number of charges defines the ion's charge state number. Tables 1 and 2 and Figures 8-13 show that ions in the same sub-populations have the same charge state number, where the charge state numbers differ from the charge state numbers of the neighboring sub-populations.		
each of said populations of multiply charged ions having the property that when its ions are mass analyzed they give rise to a mass spectrum comprising a multiplicity of peaks, said multiplicity of peaks comprising at least one coherent sequence of peaks, the ions of each peak in said coherent sequence having the same charge state number, said charge state number being greater than [sic] unity and differing by one unit from the charge state numbers of the ions of each immediately adjacent peak in said coherent sequence,	Baumann discloses the use of a PIG ion source to generate populations of multiply charged ions that are generated from distinct polyatomic molecules as well as from noble gases that are mass analyzed to generate mass spectra of multiple peaks comprising at least one sequence of peaks. <i>See Baumann</i> , Figures 1-2, 9-13, Tables 1-2. Figures 9-13 show that the population of ions comprises a plurality of subpopulations, the ions in each sub-population having the same charge state number and also show that the number of charges differs from the charge state numbers of the ions of each immediately adjacent peak in said coherent sequence.		
said coherent sequence of peaks comprising one peak for each different value of charge state number beginning with a smallest value not less than three	Figures 9-13 show that the sequence of peaks comprises one peak for each different charge state number.		



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U.S. PATENT NO. 5,686,726 (Baumann and '056 Patent)

5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
and extending to a largest value not less than five.	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		
Claim 76, depends from claim 74			
The composition of matter of claim 74 in which at least one of said distinct polyatomic parent molecular species is selected from a class of compounds known as biopolymers.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)" and that "[i]t is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the disclosure of the '056 patent to teach the application electrospray ionization methods to "biopolymers" to produce the compositions of claim 76 of the '726 patent.
Claim 77, depends from claim 74			
The composition of matter of claim 74 in which at least one of said distinct polyatomic parent molecular species is not selected from the group comprising poly (ethylene glycol)s.	None of the parent molecular species analyzed by Baumann is a synthetic polymer such as PEG.		One of ordinary skill in the art would understand the disclosure of Baumann to anticipate or render obvious claim 77 of the '726 patent including excluding compounds like polyethylene glycols.
Claim 78, depends from claim 74			
The composition of matter of claim 74 in which at least one of said distinct polyatomic parent molecular species has a molecular weight not less than about 5000.		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)." See '056 Patent at 3:7-14.	One of ordinary skill in the art would understand the disclosure of the '056 patent to disclose the application of electrospray methods to a "distinct polyatomic parent molecular species [that] has a molecular weight not less than about 5000" to produce the compositions of claim 78 of the '726 patent.

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U.S. PATENT NO. 5,686,726 (Baumann and '056 Patent)

5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
Claim 101			
A composition of matter comprising one or more populations of polyatomic gaseous ions, at least one of said populations comprising multiply charged ions formed from the same chemically distinct parent species of polyatomic neutral molecules,	Figures 8-13 and Tables 1-2 exemplify compositions comprising a population of multiply charged polyatomic ions. Baumann indicates that the multiply charged ions are from "Nobel gases and some gaseous compounds." Baumann at 517.		Each element of claim 101 of the '726 patent is found in or rendered obvious by Baumann.
said same chemically distinct species of polyatomic neutral molecules not including synthetic polymers such as poly (ethylene glycol)s,	None of the parent molecular species analyzed by Baumann is a synthetic polymer such as PEG.		Claim 101 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 101 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
all of said multiply charged ions, formed from said same chemically distinct species of polyatomic neutral molecules, having at least three charges.	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		
Claim 103, depends from claim 101			
A composition of matter according to claim 101 in which all of said multiply charged polyatomic ions, formed from, said chemically distinct species of polyatomic neutral molecules, have at least seven charges.	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		Claim 103 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 103 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 104			

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5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
A composition of matter comprising one or more populations of polyatomic gaseous ions, at least one of said populations of polyatomic ions comprising multiply charged ions formed from the same chemically distinct parent species of polyatomic neutral molecules,	Figures 8-13 and Tables 1-2 exemplify compositions comprising a population of multiply charged polyatomic ions. Baumann discloses populations of multiply charged ions that are generated from distinct polyatomic molecules. Baumann indicates that the multiply charged ions are from "Nobel gases and some gaseous compounds." Baumann at 517.		Each element of claim 104 of the '726 patent is found in or rendered obvious by Baumann.  Claim 104 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 104 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
said chemically distinct parent species of polyatomic molecules not being selected from the class comprising oligomers of synthetic polymers such as poly (ethylene glycol)s,	None of the parent molecular species analyzed by Baumann is a synthetic polymer such as PEG.		
the number of charges on each ion defining the charge state number of that ion, said at least one of said populations of polyatomic multiply charged ions comprising a plurality of sub-populations,	Baumann discloses populations of multiply charged ions where the number of charges defines the ion's charge state number. Tables 1 and 2 and Figures 8-13 show that the sub-populations have the same charge state number.		
one such sub-population for each possible integral value of charge state number beginning with a smallest value not less than three and extending to a largest value not less than five.	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		
Claim 105, depends from claim 104			
A composition of matter according to claim 104  in which said smallest value of charge state number is not less than five and said largest value is not less than seven.	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		Claim 105 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the

INVALIDITY CLAIM CHART D  
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5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
			range of charges in claim 105 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 106, depends from claim 104			
A composition of matter according to claim 104  in which said smallest value of charge state number is not less than seven and said largest value is not less than ten.	Baumann discloses that the ions generated may have up to thirty charges. <i>See</i> Section 3.3, Figures 8-13.		Claim 106 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 106 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 107			
A composition of matter comprising one or more populations of polyatomic gaseous ions,	Figures 8-13 and Tables 1-2 exemplify compositions comprising a population of multiply charged polyatomic ions. Baumann indicates that the multiply charged ions are from "Nobel gases and some gaseous compounds." Baumann at 517.		Each element of claim 107 of the '726 patent is found in or rendered obvious by Baumann in view of the disclosure of the '056 patent.
all of the ions in at least one of said populations comprising multiply charged polyatomic ions having a net charge equal to or greater than three elementary charges and	Baumann discloses that the ions generated may have up to thirty charges. <i>See</i> Section 3.3, Figures 8-13.		Claim 107 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 107 of

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5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
a composition characterized by the empirical chemical formula (Cc Hh Nn Oo Ss Pp Tt Uu Vv Ww Yy) wherein upper case letters C, H, N, O, S, P stand respectively for the elements Carbon, Hydrogen, Nitrogen, Oxygen, Sulfur, Phosphorous and T, U, V, W, Y each stand for other elements in the Periodic Table, the lower case subscript letters associated with each of said upper case letters symbolizing an integer equal to the number of atoms of the corresponding element in said ion, all the ions with three or more charges in at least one of said one or more populations of ions having compositions such that the number of different subscripts c, h, o, n, p, s, t, u, v, w, y having values greater than zero is five or less,		The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)" and that "[i]t is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry." See '056 Patent at 3:7-14.	the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.  Additionally, claim 107 recites the elements present in the composition of matter according to an empirical chemical formula, "Cc Hh Nn Oo Ss Pp Tt Uu Vv Ww Yy", and the "number of different subscripts c, h, o, n, p, s, t, u, v, w, y having values greater than zero is five or less." It would have been obvious in view of the '056 patent to apply electrospray ionization to the analysis of biomolecules because one skilled in the art would have recognized that at least one class of molecules frequently encountered in biochemistry, nucleic acids can include (by virtue of their constituent nucleotides) carbon, hydrogen, oxygen, nitrogen, and phosphorus.
said ions not being derived from a member of the class of synthetic polymers that include poly (ethylene glycol)s.	None of the parent molecular species analyzed by Baumann is a synthetic polymer such as PEG.		
Claim 108, depends from claim 107			
A composition of matter as in claim 107 in which all the ions in said at least one population of multiply charged polyatomic ions have at least five charges.	Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.		Claim 108 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the

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5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
			range of charges in claim 108 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 109, depends from claim 107			
A composition of matter as in claim 107 in which all the ions in said at least one population of multiply charged polyatomic ions have at least seven charges.	Baumann discloses that the ions generated may have up to thirty charges. <i>See</i> Section 3.3, Figures 8-13.		Claim 109 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 109 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 110			
A composition of matter comprising one or more populations of gaseous ions,	Figures 8-13 and Tables 1-2 exemplify compositions comprising a population of multiply charged polyatomic ions. Baumann indicates that the multiply charged ions are from "noble gases and some gaseous compounds." Baumann at 517.		Each element of claim 110 of the '726 patent is found in or rendered obvious by Baumann in view of the disclosure of the '056 patent.
at least one of said populations comprising multiply charged polyatomic ions having a net charge equal to or greater than three elementary charges and	Baumann discloses that the ions generated may have up to thirty charges. <i>See</i> Section 3.3, Figures 8-13.		Claim 110 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the

INVALIDITY CLAIM CHART D  
U.S. PATENT NO. 5,686,726 (Baumann and '056 Patent)

5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
<p>a composition characterized by the empirical chemical formula (Cc Hh Nn Oo Ss Pp Tt Uu Vv Ww Yy) wherein upper case letters C, H, N, O, S, P stand respectively for the elements Carbon, Hydrogen, Nitrogen, Oxygen, Sulfur, Phosphorous and T, U, V, W, Y each stand for other elements in the Periodic Table, the lower case letters symbolizing an integer equal to the number of atoms of the corresponding element in said ion,</p> <p>all the ions with three or more charges in at least one of said one or more populations of polyatomic ions having compositions such that the number of different subscripts c, h, n, o, p, s, t, u, v, w, y having values greater than zero is greater than five.</p>		<p>The '056 patent teaches "the electrospray technique produces ions from solutes of very high molecular weights (e.g. 500,000)" and that "[i]t is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry." See '056 Patent at 3:7-14.</p>	<p>range of charges in claim 110 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. See <i>In re Wertheim</i>, 541 F.2d at 267; <i>In re Peterson</i>, 65 U.S.P.Q.2d at 1382.</p> <p>Additionally, claim 110 recites the elements present in the composition of matter according to an empirical chemical formula, "Cc Hh Nn Oo Ss Pp Tt Uu Vv Ww Yy", and the "number of different subscripts c, h, o, n, p, s, t, u, v, w, y having values greater than zero is five or less." It would have been obvious in view of the '056 patent to apply electrospray ionization to the analysis of biomolecules because one skilled in the art would have recognized that at least one class of molecules frequently encountered in biochemistry, nucleic acids can include (by virtue of their constituent nucleotides) carbon, hydrogen, oxygen, nitrogen, and phosphorus.</p>
Claim 111, depends from claim 110			
<p>A composition of matter as in claim 110 in which all the ions in said at least one population of multiply charged polyatomic ions have at least five charges and a composition such that the number of different subscripts c, h, n, o,</p>	<p>Baumann discloses that the ions generated may have up to thirty charges. See Section 3.3, Figures 8-13.</p>		<p>Claim 111 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of</p>

INVALIDITY CLAIM CHART D  
U.S. PATENT NO. 5,686,726 (Baumann and '056 Patent)

5,686,726	Baumann	The '056 Patent	Basis of Invalidity Contention
p, s, t, u, v, w, y having values greater than zero is greater than five.			obviousness exists and the range of charges in claim 111 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 112, depends from 110			
A composition of matter as in claim 110 in which all the ions in said at least one population of multiply charged polyatomic ions have at least seven charges and a composition such that the number of different subscripts c, h, n, o, p, s, t, u, v, w having values greater than zero is greater than five.	Baumann discloses that the ions generated may have up to thirty charges. <i>See</i> Section 3.3, Figures 8-13.		Claim 112 of the '726 patent differs from Baumann in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and the range of charges in claim 112 of the '726 patent is therefore not patentably distinct from the range of charges disclosed in Baumann. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.